

CLAIMS

1. A variable displacement compressor having a discharge chamber, a suction chamber and a crank chamber, said compressor comprising a displacement control valve disposed at a position in a discharge pressure supply passageway capable of communicating with said crank chamber from said discharge chamber, and a fixed orifice provided at a position in a pressure relief passageway communicating with said suction chamber from said crank chamber, said displacement control valve being controlled in opening/closing operation to regulate a pressure in said crank chamber to control a piston stroke, wherein said displacement control valve further comprises a pressure sensing member being expanded and contracted by sensing a pressure in said suction chamber or said crank chamber, a valve element one end of which is brought into contact with said pressure sensing member and which has a valve part opening and closing a valve hole formed in said discharge pressure supply passageway in response to an expansion/contraction of said pressure sensing member, a valve chamber in which said valve part is disposed and to which a pressure in said crank chamber acts, a partition wall disposed around said valve element at a position in an axial direction of said valve element, a pressure chamber which is partitioned from said valve chamber by said partition wall and to which a pressure in said suction chamber acts, and a solenoid provided to the other end of said valve element and capable of controlling an opening degree of said valve part by increase/decrease of an electromagnetic force, and a flow passage from said valve chamber to said pressure chamber is formed in a portion disposed with said partition wall, whereby a gap is defined for forming a non-contact structure which does not give a sliding resistance relative to a movement of said valve element in its axial direction.

2. The variable displacement compressor according to claim 1, wherein said gap

forms said fixed orifice.

3. The variable displacement compressor according to claim 1, wherein said partition wall is fixed at a valve casing side of said displacement control valve, and said gap is defined between an inner circumferential surface of said partition wall and an outer circumferential surface of said valve element.

4. The variable displacement compressor according to claim 1, wherein said partition wall is fixed to said valve element, and said gap is defined between an outer circumferential surface of said partition wall and an inner circumferential surface of a valve casing of said displacement control valve.

5. The variable displacement compressor according to claim 1, wherein said solenoid comprises an electromagnetic coil excited for generating an electromagnetic force, a fixed iron core for generating a magnetic force by excitation of said electromagnetic coil, and a plunger attracted and moved to fixed iron core side by said magnetic force of said fixed iron core, the other end of said valve element is fixed to said plunger, said plunger is held slidably in an axial direction of said valve element, and a gap is defined between said fixed iron core and said valve element for forming a non-contact structure which does not give a sliding resistance relative to a movement of said valve element in its axial direction.